

REMARKS

The Applicant thanks the Examiner for the careful examination of this application and respectfully requests entry of the amendments indicated hereinabove.

Claims 14 and 16 are pending and rejected. Claim 14 is amended and Claim 17 is added hereinabove.

Amended Claim 14 positively recites that the step of forming an emitter polysilicon layer includes the step of depositing a layer of emitter polysilicon onto an oxide and into an aperture, followed by the step of etching back the layer of emitter polysilicon. These advantageously claimed features are not taught or suggested by the patents granted to Chin et al. or Brighton, or the publication of Park, either alone or in combination.

The Applicant respectfully traverses the assertion in the Office Action that Chin et al. teaches "...depositing a layer of emitter polysilicon 110...and etching back the layer of emitter polysilicon." The Applicant submits that Chin et al. teaches that element 110 is the base electrode (not the emitter). At column 3, lines 52-55 Chin et al. states that an etch of layer 110 forms region 111. Shortly thereafter, Chin et al states (column 3, lines 60-62) that region 111 acts as the base electrode (see also column 4, lines 6-7, 33-34, and 46).

The Office Action does not contain any statement in support of the 35 U.S.C. 103(a) rejection under Brighton. However, the Applicant reiterates his prior statement that Brighton teaches away from the advantageously claimed invention because Brighton specifically teaches that the emitter is formed by an implantation process (column 3, lines 48-50).

The Applicant respectfully traverses the assertion in the Office Action that Park teaches "...depositing a layer of oxide 67 over the substrate." The Applicant submits that Park teaches (page 3, paragraph 0024) that layer 67 is a portion of a composite (either NONO or ONON).

Finally, the Applicant respectfully traverses the assertion in the Office Action that it would have been obvious to form the oxide layer 67 as taught by Park in Chin's application. The Applicant submits that it would be illogical to use the NONO or ONON composite taught by Park in the Chin et al. application because the manufacturing processes are incompatible. Moreover, the manufacturing processes of Chin et al., Brighton, and Park preclude the teachings of the other references.

Therefore, the Applicant respectfully traverses the Examiner's rejection of Claim 14 and respectfully asserts that Claim 14 is patentable over Chin et al., Brighton, and Park. Furthermore, Claims 16 and 17 are allowable for depending on allowable independent Claim 14 and, in combination, including limitations not taught or described in the references of record.

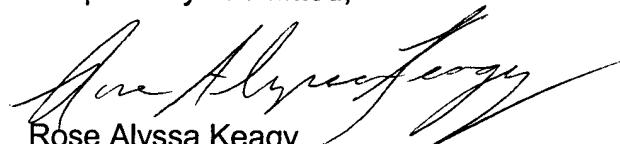
Claim 16 is allowable for depending on allowable independent Claim 14 and including further limitations not taught or described in the references of record. Specifically, Claim 16 positively recites in situ doping of the emitter polysilicon up to a level of 1E21 atoms per cubic centimeter with a dopant material and performing a rapid thermal anneal to diffuse the dopant material. These advantageously claimed features are not taught or suggested by the patent granted to Chin et al., the publication of Park, or the article of Walczyk et al., either alone or in combination.

Chin teaches away from the advantageously claimed invention because Chin et al. specifically teaches that the emitter is formed by an implantation process (col. 3, lines 2-3). Similarly, Park teaches away from the advantageously claimed invention because Park specifically teaches that the emitter is formed with a patterning step (page 4, paragraph 0029). Therefore, neither Chin et al., nor Park teach a process using in situ doped polysilicon. Furthermore, Walczyk et al. teaches away from the advantageously claimed invention because Walczyk et al. specifically teaches the use of an additional layer between poly and single crystal silicon (page 87). Moreover, none of the references of record teaches in situ doping of the emitter polysilicon up to a level of 1E21 atoms per cubic centimeter with a dopant material and performing a rapid thermal anneal to diffuse the dopant material. Lastly, not only is there no teaching to combine the references, it would be illogical to combine the references since each reference discusses a manufacturing process that precludes the teachings of the other references.

Therefore, the Applicant respectfully traverses the rejection of Claim 16 and respectfully asserts that Claim 16 is patentable over Chin et al., Park, and Walczyk et al.

For the reasons stated above, this application is believed to be in condition for allowance. Reexamination and reconsideration is requested.

Respectfully submitted,



Rose Alyssa Keagy
Attorney for Applicant
Reg. No. 35,095

Texas Instruments Incorporated
PO BOX 655474, M/S 3999
Dallas, TX 75265
972/917-4167
FAX - 972/917-4409/4418